DATA REQUEST #3
AIR QUALITY

BACKGROUND

Section 6.1.2.4 of the Application for Small Power Plant Exemption (SPPE), and its Appendix 6.1E indicate that the El Centro Unit 3 Repower Project will employ an existing cooling tower, which would be retrofitted with modern drift eliminators to restrict the drift to 0.001 percent of the water recirculation rate. Even with this retrofitting, the application calculates that the cooling tower will emit approximately 2.34 tons per year of particulate matter (PM10). Because the area is non-attainment with respect to the state and federal PM10 standards, best available control technology (BACT) and offsets are required for PM10 emission sources.

The current state of the art drift eliminators can achieve a drift rate of less than 0.0005 percent, which is half of the proposed drift rate. This type of drift eliminator is currently deemed as BACT by other air pollution control or air quality management districts in California.

DATA REQUEST

3. Table 6.1-24 lists the projected new and historical emissions of various equipment for Unit 3. This table shows that the proposed Unit 3 Repower cooling tower PM10 daily emissions are lower than the historical daily PM10 emissions, but its annual PM10 emissions are higher than the historical annual PM10 emissions.

    a. Please provide the calculations to show the proposed and historical cooling tower daily and annual PM10 emissions, and an explanation of why the new annual emissions are expected to be higher.

DATA RESPONSE

The daily emission for the cooling tower will be lower than in the past because the proposed drift elimination system will cut previous drift rates in half. The annual emissions are slightly higher with the repowering because IID is requesting up to 8,200 hours of operation per year given the improved heat rate. This number of operating hours is greater than the historical experience with the existing and less efficient Unit 3, which does not have any permit limitations on operating hours. Therefore, on an equivalent annual operating hour basis, the existing Unit 3 would produce emissions higher than the Unit 3 Repower Project due to the lower hourly and daily drift rates.

Table 6.1-24 compared the maximum annual Unit 3 Repower emissions (based on permit limits) from the cooling tower to those for the lower average hours of operation

DATA REQUEST #3
AIR QUALITY

for the existing Unit 3 during 2004 and 2005, which results in lower annual emissions.

The attached calculation worksheet provides the basis of the cooling tower PM_{10} emission calculations for the existing Unit 3 for both historical operation and the repowered Unit 3 permitted operating hours. These values are compared to the Unit 3 Repower Project permit limit operating hours. In reviewing the calculations you will note that the flow value for the repowered case is reduced from 36,000 gpm to 31,500 gpm. The 36,000 gpm value is a measured value for the system as it is currently operated. The 31,500 gpm value was the original design basis of the circulating water system and is the same design value used for all of the repowered Unit 3 design. As part of the Unit 3 repowering, the circulating water flow will be restored to its design value.

Docket Number 06-SPPE-2
First Round Data Requests
El Centro Unit 3 Repower Project
July 2006

DATA REQUEST #3
AIR QUALITY

Unit 3 Cooling Tower Drift Calculation

Exisiting Unit 3 Cooling Tower Drift Based On 2004-2005 Operation		
Circulating Water Rate	36,000	gallons/min
Cycles of Concentration	4	
TDS	905	mg/liter
	7.55	lb/1,000 gallons
Drift Eliminator Control	0.000020	
Average Operating Hours Per Year (2004/2005)	3,094	
Drift PM Emissions	1.30	lb/hr
	2.02	**tpy**
Existing Unit 3 Cooling Tower Drift Based On Repowered Unit 3 Permitted Hours of Operation		
Circulating Water Rate	36,000	gallons/min
Cycles of Concentration	4	
TDS	905	mg/liter
	7.55	lb/1,000 gallons
Drift Eliminator Control	0.000020	
Operating Hours Per Year	8,200	
Drift PM Emissions	1.30	lb/hr
	5.33	**tpy**
Repowered Unit 3 Cooling Tower Drift Based on Permitted Hours of Operation		
Circulating Water Rate	31,500	gallons/min
Cycles of Concentration	4	
TDS	905	mg/liter
	7.55	lb/1,000 gallons
Drift Eliminator Control	0.000010	
Operating Hours Per Year	8,200	
Drift PM Emissions	0.57	lb/hr
	2.34	**tpy**
Net Increase in Emissions Versus Historical Operations	**0.32**	**tpy**

Notes: PM = particulate matter
TDS = total dissolved solids
tpy = tons per year